# Software Requirements Specification

for the

# Management Processes

of an

# Integrated Library System

Version 3.0 final

Prepared by Lori Ayre and Lucien Kress
Galecia Group
January 27, 2009

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# Revision History

| Name | Date | Reason For Changes | Version |
|------|------|--------------------|---------|
| Lucien Kress | 9/26/08 | Initial Draft | 1.0 draft |
| Lucien Kress | 12/1/08 | Revisions, Requirements workshop | 2.0 draft |
| Lucien Kress | 1/27/09 | Revisions, final | 3.0 final |

# 1. Introduction

## 1.1 Purpose and Perspective

This Software Requirements Specification (SRS) describes the functional and nonfunctional requirements for the Management Processes of an Integrated Library System (ILS). The requirements were developed specifically for King County Library System, but are believed to be suitable for many large, urban, multiple-branch, centralized library systems.

The requirements in this SRS presuppose the general data structures and functionality of a full-fledged ILS. The Management Processes will replace and enhance the current capabilities of commercially available ILSes, as well as add new functionality.

## 1.2 Product Scope and Features

The Management Processes facilitates the management of Library services, programs, and policies. Specifically, the Management Processes support the following activities, among others:

- Analyzing the Library collection and its use by patrons.
- Analyzing branch capacity and optimal distribution of the collection.
- Analyzing the demographics and interests of the Library's patrons.
- Analyzing staff productivity and workflow.
- Tracking and verifying financial transactions.

The current specification presupposes the general functionality of an ILS and specifies only those requirements that directly or indirectly relate to management activities. King County Library has previously published specifications for Acquisitions and Serials Management, Circulation, and Cataloging modules. Requirements for OPAC and web services are currently under development.

Moreover, the current specification is focused on functional characteristics of Management Processes. Data structures and user interfaces will require further specification and development using an iterative, prototype-oriented software development methodology.

## 1.3 Intended Audience

This SRS is intended both for library managers and staff who may contribute additional requirements or commentary, and for software project managers and developers who will implement the requirements. As such, it aims for a high level of readability for a non-technical audience, while providing enough specificity to be useful to a software developer.

It is assumed that when software development occurs, it will be in a highly collaborative and iterative environment in which end-users have multiple opportunities to review prototypes and refine the user interface and software functionality.

It is also assumed that the reader has a general understanding of Library services and processes and does not require definition of common Library terminology.

## 1.4  Document Conventions

The SRS includes requirements. Requirements include a reference to a process flowchart where appropriate. Flowcharts generally indicate the current approach to Management Processes at King County Library System, and should be considered to give contextual information rather than to prescribe or constrain new software development.

## 1.5  User Classes and Characteristics

| | |
|---|---|
| Patron | A Patron is a customer of King County Library System, either possessing a library card or not, either on site of a community library or not, using either print materials, media materials, or electronic resources. |
| Staff | Staff include managers, librarians, library technicians, library assistants, and library pages who are involved in designing and providing services for the Library. |
| Managers | Managers include management staff who oversee Library processes. |
| Library Managers | Library Managers include Cluster and Site Managers who provide input to the design and implementation of Library services. |
| Library Directors | Library Directors include members of the Library Executive Team who plan and direct Library services and priorities. |

## 1.6  Operating Environment

OE-1:  Management Processes support the needs of a large, multiple-branch library system. Specifically, the system must support a library system with 50 locations, 20 million circulations, purchasing and processing over 500,000 items per year.  It is highly desirable that searches and reports can be processed during open hours without disrupting other system functions.

OE-2:  Management Processes shall operate on a Linux or Solaris server.

OE-3:  Management Processes shall be accessible through a web-browser or a Windows-compatible client.

OE-4:  If web-browser based, Management Processes shall be accessible through Microsoft Internet Explorer (v.6.0 and later) and Mozilla Firefox (v.2.0 and later).

OE-5:  Management Processes shall be accessible with screen-reading software, screen-magnification software, and other software programs designed to increase accessibility.

## 1.7  Design and Implementation Constraints

CO-1:  Management Processes shall use a fully relational database back-end.

CO-2:  Management Processes shall produce standards-compliant HTML.

CO-3:  Management Processes shall provide a development and training environment with the ability to migrate configurations to a production environment.

CO-4:  User rights and privileges will be controlled through security groups and/or "roles" that allow access control for individuals, workgroups, and arbitrary staff groups.

CO-5:     These requirements shall not constrain functionality or features of the Online Public Access Catalog (OPAC) module.

## 1.8  User Documentation

UD-1:     The software developer shall provide complete data specifications for authority records, bibliographic records, order records, item records, hold/request records, and other records maintained or accessed by Management Processes.

UD-2:     The software developer shall provide a thorough high-level description of major processes, including bibliographic record import and export, validation of bibliographic records against internal and external authority sources, and standard reports.

UD-3:     The system shall provide an online, hierarchical, and cross-linked help system in HTML that describes and illustrates all system functions.

## 1.9  Assumptions and Dependencies

AS-1:     Management Processes are part of an enterprise-level Library Automation System.

AS-2:     Management Processes are consolidated at a central location, and accept input and provide services to multiple locations.

DE-1:     Management Processes rely on the data structures and functionality of an enterprise-level Library Automation System, including Acquisitions and Cataloging modules.

DE-2:     Management Processes interface with a variety of vendor websites, via published APIs and/or automated transfer of standard-format data files (e.g. USMARC21, EDIFACT).

DE-3:     Management Processes interact with a patron interface, also known as an Online Public Access Catalog (OPAC.

# System Requirements

## Category:  Management Tools: General

**Req ID:** 5616          **Source:**  MGT                              **Priority:** 3

**Name:**  **streamlined staff login**

**Description:**  The system supports (but does not require) streamlined staff login methods, for example staff member swipes a card to log into a terminal.

**Related Reqs:**                              **Related Process**

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**Req ID:** 5607          **Source:**  MGT                              **Priority:** 3

**Name:**  **report templates**

**Description:**  System administrators can create report templates that are available to front-line staff, and can be run as is or modified to the staff person's particular needs.

**Related Reqs:**                              **Related Process**

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**Req ID:** 5617          **Source:**  MGT                              **Priority:** 3

**Name:**  **reports permissions**

**Description:**  System provides fine-grained permissions to allow or disallow staff to run specific reports, and/or to run ad hoc reports on specific sets of data.

**Related Reqs:**                              **Related Process**

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**Req ID:** 5624          **Source:**  MGT                              **Priority:** 3

**Name:**  **query tool**

**Description:**  System provides a user-friendly interface for designing queries against all record types. Staff can select fields to query; select values from picklist of possible values; select regular expressions from drop-down menu, and use a full range of Boolean operators. Administrators control staff access to tables and fields.

**Related Reqs:**                              **Related Process**

| **Req ID:** | 5618 | **Source:** | MGT | **Priority:** 3 |

**Name:** **board reports**

**Description:** The system provides canned reports for consumption by Library Board or other external consumers. Generally, reports display statistics on check-outs, check-ins, number of holds placed, number of holds filled. Statistics should be cross-tabulated per terminal, per branch, per cluster of branches, per hour, per patron age range, per patron type, and per patron location.

**Related Reqs:** **Related Process**

| **Req ID:** | 5609 | **Source:** | MGT | **Priority:** 3 |

**Name:** **transaction data archive**

**Description:** Transactions are archived in a form that protects patron privacy, while providing useful demographic statistics.

**Related Reqs:** **Related Process**

| **Req ID:** | 5631 | **Source:** | MGT | **Priority:** 3 |

**Name:** **periodic reports, examples**

**Description:** Examples of periodic reports: bibliographic records with holds; items that have not been checked out in X days; item-level holds; items with invalid item type; in-transit items with outstanding hold; items that have been in-transit for more than X days; items that are the last copy in the system; items with a long call number; missing items; bibliographic records with no item records; patrons with invalid home library.

**Related Reqs:** **Related Process**

## Category: Management Tools: Demographics

**Req ID:** 5606      **Source:** MGT      **Priority:** 3

**Name:** **behavior and use analysis**

**Description:** The system produces statistics that can be used to understand and predict patron behavior and use of materials. For example, how quickly is a particular book returned, on average? How likely is a particular book to be renewed? What percent of check-outs at a particular branch are renewals?

**Related Reqs:** 5609      **Related Process**

**Req ID:** 5605      **Source:** MGT      **Priority:** 3

**Name:** **demographic statistics**

**Description:** The system produces useful demographic statistics, including transactions by geographical regions, age ranges, ethnicity, etc. The data used to produce these statistics must be anonymized, i.e. information that could be used to identify a patron is deleted.

**Related Reqs:** 5609      **Related Process**

**Req ID:** 5613      **Source:** MGT      **Priority:** 3

**Name:** **collection use outcomes**

**Description:** The system provides tools for capturing outcomes of collection use. For example, the system provides feedback mechanisms to ask follow-up questions (Did you read this item? Did you like it? Was it useful?).

**Related Reqs:**      **Related Process**

## Category:  Management Tools: Inventory Control

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|---|---|---|
| **Req ID:** 5634 | **Source:** MGT | **Priority:** 3 |

**Name:**    **material volume report**

**Description:**    Ability to report on the volume of material in a given library at any point in time, based on new acquisitions, items on the shelf, and items out in circulation, with the ability to break down volume in categories (e.g. total items in library, number of holds, number of adult fiction, number of board books, etc).

**Related Reqs:** 5635          **Related Process**

| | | |
|---|---|---|
| **Req ID:** 5635 | **Source:** MGT | **Priority:** 3 |

**Name:**    **system capacity dashboard**

**Description:**    The system provides a dashboard showing capacity of all branches (as defined in REQ-5634).

**Related Reqs:** 5634          **Related Process**

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|---|---|---|
| **Req ID:** 5638 | **Source:** MGT | **Priority:** 3 |

**Name:**    **shelf space report**

**Description:**    For each genre and format of material, ability to compare the percentage of total circulations, the percentage of the collection, and the percentage of total shelf space that genre/format comprises. Ability to report per library and per system.

**Related Reqs:**          **Related Process**

| | | |
|---|---|---|
| **Req ID:** 5602 | **Source:** MGT | **Priority:** 3 |

**Name:**    **floating materials load balancing**

**Description:**    Ability to maintain appropriate load of floating material at each branch, depending on branch capacity, age of materials, etc.

**Related Reqs:**          **Related Process**

| **Req ID:** | 5601 | **Source:** | MGT | | **Priority:** 3 |
|---|---|---|---|---|---|

**Name:** **uncataloged material**

**Description:** Ability to control inventory of uncataloged material, such as paperback books and children's board books.  Support for quick distribution; minimal branch labor; and ability to identify how the material is being used. Ability to count transactions and include in circulation statistics and reports.

**Related Reqs:**        **Related Process**

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| **Req ID:** | 5603 | **Source:** | MGT | | **Priority:** 3 |
|---|---|---|---|---|---|

**Name:** **just-in-time collection**

**Description:** Ability to maintain a central "just in time" collection, in which holds are serviced from a warehouse.  For example, popular titles with a short lifespan, and books that are often assigned at schools.

**Related Reqs:** 5818        **Related Process**

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| **Req ID:** | 5818 | **Source:** | OUT | | **Priority:** 3 |
|---|---|---|---|---|---|

**Name:** **item transfer utility**

**Description:** System provides a utility for transferring batches of items between branches, used for example to move books into a mobile library, an outreach program collection, or a "just-in-time" warehouse.  Utility includes ability to query for candidate materials; ability to save queries for repeated use; ability to manually select titles from query results; and ability to change records of all or selected items to move to new location.  Mechanisms for moving items include changing location field, generating pull lists, etc. In addition, utility provides means to revert items to original location after a set period of time, and/or based on other criteria.

**Related Reqs:** 5603        **Related Process**

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| **Req ID:** | 5636 | **Source:** | MGT | | **Priority:** 3 |
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**Name:** **track recently returned materials**

**Description:** Ability to issue a real-time query of recently-returned, currently-available material.

**Related Reqs:**        **Related Process**

| **Req ID:** | 5626 | **Source:** | MGT | | **Priority:** 3 |
|---|---|---|---|---|---|

**Name:** **missing and damaged items report**

**Description:** The system provides reports of missing and damaged items per branch.

**Related Reqs:** **Related Process**

| **Req ID:** | 5627 | **Source:** | MGT | | **Priority:** 3 |
|---|---|---|---|---|---|

**Name:** **in-transit items report**

**Description:** The system generates a list of items that have been in-transit for more than X days (X configurable), per branch, per cluster, and per system.

**Related Reqs:** **Related Process**

| **Req ID:** | 5630 | **Source:** | MGT | | **Priority:** 3 |
|---|---|---|---|---|---|

**Name:** **item record purging**

**Description:** The system provides a utility for identifying item records to purge, based on customizable criteria such as: an item has been in status "missing" for more than X days; an item has status "weeded"; etc. Matching items can be reviewed and removed from the set prior to deleting. Delete items can be undeleted for a customizable period of time.

**Related Reqs:** **Related Process**

| **Req ID:** | 5610 | **Source:** | MGT | | **Priority:** 3 |
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**Name:** **deletions**

**Description:** Ability to count and track record deletions (e.g. item records, patron records) per location and per system.

**Related Reqs:** **Related Process**

## Category:  Management Tools: Patron Records

**Req ID:** 5619          **Source:**  MGT                    **Priority:** 3

**Name:**  **patron characteristics**

**Description:** Queries and reports can be limited or grouped by various patron characteristics, including:  age range, neighborhood, county of residence, home branch, patron type, and preferred language.

**Related Reqs:**                          **Related Process**

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**Req ID:** 5620          **Source:**  MGT                    **Priority:** 3

**Name:**  **GIS interface**

**Description:** Patron records can store GIS data, and/or interface with external GIS resources.

**Related Reqs:**                          **Related Process**

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**Req ID:** 5629          **Source:**  MGT                    **Priority:** 3

**Name:**  **inactive patrons report**

**Description:** The system generates a list of patrons with no circulation or electronic activity in the last X days (X configurable).

**Related Reqs:**                          **Related Process**

## Category: Management Tools: Transaction Records

**Req ID:** 5604       **Source:** MGT       **Priority:** 3

**Name:** **transaction history**

**Description:** Transaction history is maintained for X days (X is configurable); monthly and annual aggregate information is maintained indefinitely.

**Related Reqs:**       **Related Process**

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**Req ID:** 5614       **Source:** MGT       **Priority:** 3

**Name:** **examples of useful backroom statistics**

**Description:** Transactions can be grouped by hour, staff person, staff hours, terminal, branch, and branch cluster. Transactions include check-ins, check-outs, fines collected, patron registrations, etc., and can be queried by all transactions or by type of transaction. Additional examples of useful statistics include: amount of time processing check-ins per branch; time between return of items and placement on shelf per branch; etc. One application is to evaluate optimal staff allocation between branches, and between tasks within branches.

**Related Reqs:**       **Related Process**

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**Req ID:** 5621       **Source:** MGT       **Priority:** 3

**Name:** **types of check-in**

**Description:** The system counts all types of check-in individually and cumulatively: book-drop, backroom, self-service, staff check-in, paging list check-in, and status flip.

**Related Reqs:**       **Related Process**

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**Req ID:** 5622       **Source:** MGT       **Priority:** 3

**Name:** **types of check-out**

**Description:** The system counts all types of check-out individually and cumulatively: staff check-out, self check-out, staff renewal, self check-out renewal, PAC renewal, OPAC renewal, telephone renewal. In addition, check-outs are categorized by whether they were checked out from the holdshelf or from browsing shelves.

**Related Reqs:**       **Related Process**

**Req ID:**   5623                **Source:**   MGT                     **Priority:** 3

**Name:**   **holds and locations**

**Description:**   The system counts all hold requests, including how the hold was placed:  at a staff desk, at a public computer inside the library, or remotely.

**Related Reqs:**                              **Related Process**

**Req ID:**   5628                **Source:**   MGT                     **Priority:** 3

**Name:**   **transactions report**

**Description:**   The system can generate a report of transactions (holds placed, holds filled, and check-outs) per patron, per branch, per cluster, per system, per county, per GIS sector, and per library jurisdiction.  The system displays the number of check-outs and placed holds per patron.  Holds are subtotalled by type, e.g. active, frozen, and frozen-until holds.

**Related Reqs:**                              **Related Process**

## Category:  Management Tools: Financial Records

**Req ID:** 5639          **Source:** MGT                    **Priority:** 3

**Name:** **standard accounting practice and auditing requirements**

**Description:** All reports and data archiving must comply with standard accounting practice and state, county, and municipal auditing requirements.

**Related Reqs:**                    **Related Process**

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**Req ID:** 5611          **Source:** MGT                    **Priority:** 3

**Name:** **financial data (patrons)**

**Description:** Fines, charges, waivers, and ecommerce transactions are attached to patron and item records.  System tracks fines waived and payments made per library. Financial information can be updated easily. As an example, a staff user can easily query patron accounts with balances greater than X dollars.

**Related Reqs:**                    **Related Process**

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**Req ID:** 5625          **Source:** MGT                    **Priority:** 3

**Name:** **financial reports**

**Description:** The system provides financial reports including:  patron account balances by patron, home library, cluster, and system; fines and charges accrued per time period (e.g. last twelve months, YTD, last month) and per type of charge (overdue fines, damaged item charges, lost item charges, etc.); fines waived per time period and per branch; payments made per time period and per payment method (e.g. staff desk, self-check station, OPAC).

**Related Reqs:**                    **Related Process**

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**Req ID:** 5637          **Source:** MGT                    **Priority:** 3

**Name:** **financial audit trail**

**Description:** The system maintains a ledger of patron payments, including which charges payments are applied to, to facilitate reconciliation.

**Related Reqs:**                    **Related Process**